Notes from Simulation for Intensity Frontier Meeting (2014-05-12)

People attending: R. Kutschke, S. Brice, A. Lyon, B. Kerns, A. Sousa, K. Terao, T. Le, Z. Pavlovic, A. Schreckenberger, B. Zwaska.
D. Elvira, K. Genser, R. Hatcher, P. Lebrun, H. Wenzel, J. Yarba

Next meeting will take place by the end of July or beginning of August.

Actions taken after the 3/24 meeting (Daniel Elvira)

The IF-SIMULATION list (members are PDS team, IF experiments simulation representatives, interested managers) was created. Contact people from PDS with each experiment were appointed. Geant4 and GENIE projects were created in Redmine for progress tracking. Redmine "issues" may be opened by PDS members or simulation representatives/experts from the experiments.

List of requests and activities (K. Genser)

Krzysztof presented a list of simulation needs from the experiments updated with the input received during the 3/24 meeting.

The following IS NOT the list but some comments on the list:

- R. Kutschke suggests that PDS starts helping the experiments with geometry check tool (how to interface it, turn it on/off, use it) as early as possible in the process of development of their simulation applications.
- A. Sousa reiterated NOvA's wish to get advise on visualization tools. There was general agreement to do a survey of use of visualization tools by the experiments to learn their individual needs and reasons for their choices.
- The experiments should be prepared for a transition to G4.10, which supports event level parallelization (multithreading). Experiments may start by running G4.10 in sequential mode. That way they can benefit from physics improvements, which will not be back-ported to previous versions of G4.
- Mu2e, and possible neutrino experiments, are interested in a feature that would allow them to define a physics process that takes over from G4 in some situations (i.e. a given particle type onto a particular target). Could this feature be developed and eventually incorporated as part of Geant4? Mu2e would be happy to partner and contribute effort to develop this feature.

Action Items:

- PDS members (Gabe for GENIE/Krzysztof for G4) and experiment representatives will create Redmine issues associated with the to do list presented here.

- PDS contact people to each IF experiment will conduct the visualization survey within a month. The digested information with a potential course of action will be presented during the July/Aug meeting.

Collaboration model between PDS and the experiments (G. Perdue)

The PDS group will partner with simulation experts in the experiments to improve the physics of the simulation tools, implement new features, etc. Currently, PDS is working closely with Mu2e, g-2, and the neutrino experiments on muon capture physics, an art-G4 interface (artg4tk), and physics for neutrino simulation (GENIE, beam/detector simulation).

Gabe proposed to create a "Physics for Neutrino Simulation" working group that would meet once a month to discuss progress on GENIE/G4 physics development and validation for neutrino simulations. He will encourage participation from members of PDS, the experiments, as well as theorists and phenomenologists. Meetings would be open to everyone interested.

Action Item: people in the room endorsed the idea of the "Physics for Neutrino Simulation" working group. Gabe will call the first meeting within a month.